

ABSTRACT OF THE DISCLOSURE

In a vacuum processing system used in a semiconductor device manufacturing process, a plate-shaped placement area protector made of a dielectric material having a surface of dimensions and shape matching those of a surface of a substrate or an area for substrate placement in a surface of a substrate stage in place of the substrate. An etching gas is introduced into a vacuum vessel by a gas introduction mechanism and predetermined high-frequency electromagnetic wave power is applied to the substrate stage from a stage high-frequency electromagnetic wave power source. Plasma is formed in the proximity of the surface of the substrate stage by the applied high-frequency electromagnetic wave power, and a deposited film on the surface of the substrate stage is removed with the plasma. The placement area protector has the same electrical properties as the deposited film.